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Subject: JAVA Position Paper

Java Position Paper
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Summary

Java as a client platform can help AOL by leveraging outside development to lower distribution costs and increase quality. possible uses:

1. integrate it with the InternetWorks browser
2. eventual upgrade path from booklink browser
3. leverage Netscape installed base to distribute AOL client software.

Questions:

Is the technology ready?
is Sun the right technology partner (other options maybe netscape or microsoft)

Suggested next steps:

Evaluate Java as major technology component for AOL client strategy by: Implementing AOL browser in Java as a test and possible deployment: 2 months 3 people.

CYU by: Integrate java into InternetWorks.

Background from WAIS Technical team (lead by Edy Henderson):

Popular opinion is that 80% of Web browsers will be Java enabled. Netscape has already licensed Java and announced it for Netscape2.0. Sun and Netscape are setting market expectations for dynamic browsers. AOL could license Java from Sun to integrate with AOL's Web browser.

We can add dynamic realtime updates via the AOL Web browser for: portfolio management, spreadsheets, 3D science simulation, sports scores, downloading of other applications, etc. With Java, AOL will do interactive advertising and shopping using customized forms.

Market Position / Competitive advantages / Sun's commitment

The explosive growth of the Web and the demand for interactive media provide fertile ground for a product such as Java. With MSN and Blackbird on the horizon, the Web needs to move into open access for interactivity and animation.

Sun has put major corporate focus on Java. The Java organization was elevated to have its own president on Scott McNealy's staff. Expect Sun to continue to make a big play for market presence with Java. Sun and Netscape are marketing Java aggressively. This gives Java a marketing advantage over using an alternative such as Viola.

Browser Story

Hot Java

Sun introduced the Hot Java interactive browser in Spring of 1995. With it Web page developers can add dynamic, interactive, extensible, transparently loaded applications. Hot Java is written in the Java scripting language and built on Mosaic techniques. Unlike other browsers it has no knowledge of data types, protocols and behaviors necessary to navigate the Web. Instead it coordinates pieces each having individual responsibility. This allows flexibility and ability to easily add new capabilities.

Licensing Strategy

Sun is aggressively licensing Java for use on Web browsers. Sun licenses Java/HotJava source and binaries. Licensing fees apply to corporations making commercial distribution using Java/HotJava.

Licensing to Netscape

Sun and Netscape announced a Java licensing agreement in May 1995. Netscape Navigator 2.0, introduced September 1995, features Netscape scripting language (based on Java). and Java Applets, secure interactive objects, enabling animation, live updating, and two-way interaction from Web sites. Netscape's market position helps to make Java use a "standard" for Web browsers.

Java Scripting Language

Java is a C++ like object-oriented language that is distributed, interactive, and secure. Java comes with rich class libraries for creating GUIs. It has ease of use features built in such as garbage collection and array bounds checking.

Java Applets are mini applications written in Java that are transparently downloaded and run on the client.

Security

Encryption and authentication (based on public-key encryption) with virus protection are built in.

Distributed

Java applications can easily open and access objects across the net via URLs. The Java language uses lightweight, extensible, cross platform protocol requiring no added bandwidth. Java provides local and remote access to objects via a library of routines for coping easily with TCP/IP protocols like HTTP and FTP.

Architecture-Neutral, OS and CPU

Java/HotJava is currently available on Solaris Sparc, Windows NT, Windows 95. Ports are in progress for Win32 and Apple MacOS 7.5, Linex, Next, SunOS and Solaris Intel.

Java Applets are portable to all the systems that support Java.

The Java compiler generates processor independent "virtual machine" bytecode instructions, interpreted on each machine and translated into native machine code on the fly. There are no built in "implementation dependencies." Primitive data type sizes are specified, as is the behavior of arithmetic on them. For example, "int" always means a signed two's complement 32 bit integer, and "float" always means a 32-bit IEEE 754 floating point number.

The Java system itself is portable. The compiler is written in Java and the runtime is written in ANSI C with a clean portability boundary. The portability boundary is essentially POSIX.

What is costs

The Java source code, though distributed by Sun, IS NOT public domain. Commercial distribution of the sources or a binary built from these sources

requires a license from Sun. Standard pricing is \$250K for source for the first 50K copies distributed, then \$5 per copy. Sun's permission or license is NOT needed to create or distribute Applets or Java programs.

Recommendations

License Java scripting language from Sun
Integrate Java into AOL Web browser(s)
Make AOL browsers come to life dynamically using Java Applets

Next Steps

Design AOL Java Applets, prototype them on HotJava browser.
Contact Eric Schmidt, Bill Joy, or Kim Polese (Java Marketing x47238)
at Sun to negotiate licensing terms for AOL.
Scope out amount of work and resources to integrate Java into AOL
browser(s).

WAIS tech people have significant contacts with Java group and have experience building Java applications.